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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,358	11/17/2003	Xiandong Wang	08935-295001	7033
26161	7590	08/09/2006	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER

1745

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/716,358

Applicant(s)

WANG ET AL.

Examiner

Monique M. Wills

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 42-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3-11, 13-15, 17-26 & 28-30, 32-35 & 42-52 is/are rejected.
- 7) ☒ Claim(s) 2, 12, 16, 27 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

DETAILED ACTION

*Response to Amendment*

This Office Action is responsive to the Amendment filed May 19, 2006.

The following rejections are overcome:

- The rejection of claims 1-41 under 35 U.S.C. 112, first paragraph is overcome.
- Claims 1-15, 17-18, 20-30, 32-41 provisionally rejected under 35 U.S.C. 101. Newly added claims 42-52 are also rejected under 35 U.S.C. 101.

The new rejections are as follows:

- Claims 1-15, 17-18, 20-30, 32-35, 44-45, 47-49 & 51 provisionally
- Claims 43, 46, 50 & 52 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10/913,922 in view of Mori et al. U.S. Patent 6,794,082.

*Allowable Subject Matter*

Claims 2, 12, 16, 27 & 31 would be allowable if rewritten to overcome the statutory type (35 U.S.C. 101) double patenting rejection and rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims.

The prior art, such as Fiordiponti et al., "Behavior of Bi<sub>2</sub>O<sub>3</sub> as a Cathode for Lithium Cells" teaches a Bi<sub>2</sub>O<sub>3</sub>, but the reference is silent to an alkalated form of the bismuth oxide. Therefore, the instant claims are patentably distinct from Fiordiponti.

*Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15, 17-18, 20-30, 32-35 & 42-52 rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9, 30-39, 60-72 & 92-97 of U.S. Patent No. 10/913,922. Although the conflicting claims are not identical, they are not patentably distinct from each other because applicants claim the same invention as follows:

Claim 1 of '922 claims the primary battery of instant claim 1 comprising: a cathode comprising an oxide containing an alkali metal and pentavalent bismuth, the alkali metal being lithium or potassium; an anode; a separator between the cathode and the anode; and an alkaline electrolyte.

Claim 2 of '922 claims the primary battery of instant claim 2, wherein the oxide is  $\text{LiBiO}_3$ ,  $\text{Li}_3\text{BiO}_4$ ,  $\text{Li}_5\text{BiO}_5$ ,  $\text{Li}_7\text{BiO}_6$ ,  $\text{Li}_4\text{Bi}_2\text{O}_7$ ,  $\text{Li}_5\text{Bi}_3\text{O}_{10}$  or  $\text{KbiO}_3$ .

Claim 3 of '922 claims the primary battery of instant claim 3, wherein the oxide comprises an electrically conductive portion.

Claim 4 of '922 claims the primary battery of instant claim 4, wherein the electrically conductive portion is an electrically conductive surface coating comprising carbon or a metal oxide.

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Claim 5 of ' 922 claims the primary battery of instant claims 5, 42, 44, 45, 47, 48, 49 & 51, wherein the electrically conductive surface coating comprises a material selected from the group consisting of graphite, carbon black, acetylene black, cobalt oxide, cobalt oxyhydroxide, silver oxide, silver nickel oxide, nickel oxyhydroxide, and indium oxide.

Claim 6 of ' 922 claims the primary battery of instant claim 6, wherein the anode comprises zinc.

Claim 7 of ' 922 claims the primary battery of instant claim 7, wherein the electrolyte comprises lithium hydroxide, sodium hydroxide, or potassium hydroxide.

Claim 8 of ' 922 claims the primary battery of instant claim 8, wherein the separator is capable of preventing soluble bismuth species from diffusing from the cathode to the anode.

Claim 9 of ' 922 claims the primary battery of instant claim 9, wherein the separator is capable of trapping soluble bismuth species.

Claim 30 of ' 922 claims the primary battery of instant claim 10, comprising: a cathode comprising an oxide containing an alkaline earth metal and pentavalent bismuth; an anode; a separator between the cathode and the anode; and an alkaline electrolyte.

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Claim 31 of ' 922 claims the primary battery of instant claim 11, wherein the alkaline earth metal is selected from the group consisting of magnesium, calcium, strontium, and barium.

Claim 32 of ' 922 claims the primary battery of instant claim 12, wherein the oxide is  $\text{MgBi}_2\text{O}_6$ ,  $\text{Sr}_2\text{Bi}_2\text{O}_7$ , or  $\text{Ba}_2\text{Bi}_2\text{O}_6$ .

Claim 33 of ' 922 claims the primary battery of instant claim 13, wherein the oxide comprises an electrically conductive portion.

Claim 34 of ' 922 claims the primary battery of instant claim 14, wherein the electrically conductive portion is an electrically conductive surface coating comprising carbon or a metal oxide.

Claim 35 of ' 922 claims the primary battery of instant claim 15, wherein the electrically conductive surface coating comprises a material selected from the group consisting of graphite, carbon black, acetylene black, cobalt oxide, cobalt oxyhydroxide, silver oxide, silver nickel oxide, nickel oxyhydroxide, and indium oxide.

Claim 36 of ' 922 claims the primary battery of instant claim 17, wherein the anode comprises zinc.

Claim 37 of ' 922 claims the primary battery of instant claim 18, wherein the electrolyte comprises lithium hydroxide, sodium hydroxide, or potassium hydroxide.

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Claim 38 of ' 922 claims the primary battery of instant claim 20, wherein the separator is capable of preventing soluble bismuth species from diffusing from the cathode to the anode.

Claim 39 of ' 922 claims the primary battery of instant claim 21, wherein the separator is capable of trapping soluble bismuth species.

Claim 60 of ' 922 claims the primary battery of instant claim 22, comprising: a cathode comprising an oxide containing a metal and pentavalent bismuth, the metal being a main group metal, a lanthanide or a transition metal other than silver; an anode; a separator between the cathode and the anode; and an alkaline electrolyte.

Claim 61 of ' 922 claims the primary battery of instant claim 23, wherein the metal is selected from the group consisting of scandium, vanadium, manganese, iron, cobalt, nickel, copper, zinc, yttrium, zirconium, niobium, molybdenum, ruthenium, palladium, cadmium, tantalum, and tungsten.

Claim 62 of ' 922 claims the primary battery of instant claim 24, wherein the metal is selected from the group consisting of lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, and ytterbium.



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Claim 63 of ' 922 claims the primary battery of instant claim 25, wherein the metal is selected from the group consisting of indium, tin, antimony, and lead.

Claim 64 of ' 922 claims the primary battery of instant claim 26, wherein the oxide further comprises an alkali metal or an alkaline earth metal.

Claim 65 of ' 922 claims the primary battery of instant claim 27, wherein the oxide is  $\text{ZnBi}_2\text{O}_6$ ,  $\text{Cu}_2\text{Bi}_2\text{O}_7$ ,  $\text{CdBi}_{1.2}\text{O}_6$ , or  $\text{Sr}_2\text{ScBiO}_6$ .

Claim 66 of ' 922 claims the primary battery of instant claim 28, wherein the oxide comprises an electrically conductive portion.

Claim 67 of ' 922 claims the primary battery of instant claim 29, wherein the electrically conductive portion is an electrically conductive surface coating comprising carbon or a metal oxide.

Claim 68 of ' 922 claims the primary battery of instant claim 30, wherein the electrically conductive surface coating comprises a material selected from the group consisting of graphite, carbon black, acetylene black, cobalt oxide, cobalt oxyhydroxide, silver oxide, silver nickel oxide, nickel oxyhydroxide, and indium oxide.

Claim 69 of ' 922 claims the primary battery of instant claim 32, wherein the anode comprises zinc.

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Claim 70 of ' 922 claims the primary battery of instant claim 33, wherein the electrolyte comprises lithium hydroxide, sodium hydroxide, or potassium hydroxide.

Claim 71 of ' 922 claims the primary battery of instant claim 34, wherein the separator is capable of preventing soluble bismuth species from diffusing from the cathode to the anode.

Claim 72 of ' 922 claims the primary battery of instant claim 35, wherein the separator is capable of trapping soluble bismuth species.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 43, 46, 50 & 52 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10/913,922 in view of Mori et al. U.S. Patent 6,794,082. Although the conflicting claims are not identical, they are not patentably distinct from each other because they contain the same subject matter as follows:

Claim 1 of '922 claims the primary battery of instant claims 43, 46, 50 & 52 comprising: a cathode comprising an oxide containing an alkali metal and pentavalent bismuth, the alkali metal being lithium or potassium; an anode; a separator between the cathode and the anode; and an alkaline electrolyte.

'922 does not expressly disclose a cathode material also containing manganese dioxide.

Mori teaches that it is conventional for cathodic materials to contain multiple active materials including manganese dioxide.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the manganese dioxide of Mori in the cathode of '922, in order to increase storage capacity and discharge life of the electrode.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

*Response to Arguments*

Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
PATRICK JOSEPH RYAN  
SUPERVISORY PATENT

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8/7/06